

CLAIMS

1. A secondary battery comprising: a positive electrode; a negative electrode; a porous electron-insulating layer adhered to a surface of at least one selected from the group consisting of said positive electrode and said negative electrode; and an electrolyte,

wherein said porous electron-insulating layer comprises a particulate filler and a resin binder, and said particulate filler comprises an indefinite-shape particle comprising a plurality of primary particles that are joined to one another.

2. The secondary battery in accordance with claim 1, wherein a neck is formed between at least a pair of said primary particles that are joined to one another and that form said indefinite-shape particle.

3. The secondary battery in accordance with claim 1, wherein said indefinite-shape particle is formed by partially melting said plurality of primary particles for bonding.

4. The secondary battery in accordance with claim 1, wherein said indefinite-shape particle has a mean particle size that is twice or more than twice the mean particle size of said primary particles and not more than 10 μm .

5. The secondary battery in accordance with claim 1, wherein said indefinite-shape particle comprises a metal oxide.

6. The secondary battery in accordance with claim 5,

wherein said particulate filler further comprises a resin fine particle.

7. The secondary battery in accordance with claim 1, wherein said resin binder comprises a polyacrylic acid derivative.

8. The secondary battery in accordance with claim 1, wherein said positive electrode comprises a composite lithium oxide, said negative electrode comprises a material capable of charging and discharging lithium, and said electrolyte comprises a non-aqueous solvent and a lithium salt dissolved in the non-aqueous solvent.

9. The secondary battery in accordance with claim 1, further comprising a separator sheet that is interposed between said positive electrode and said negative electrode, said separator sheet being independent of both said positive electrode and said negative electrode.